REMARKS

The applicants have carefully considered the Office action dated January 13, 2004 and the references it cites. The Office action rejects claims 1-11 and 13-39 over one or more of Fardeau et al. (U.S. Patent 5,574,962), Jensen et al. (U.S. Patent 6,421,445), and Lert et al. (U.S. Patent 4,677,466). By way of this Response, claims 1-11 and 13-39 have been canceled without prejudice. Therefore, the rejections of those claims have been mooted. New claims 40-63 have been added. As explained below, it is respectfully submitted that all pending claims are in condition for allowance and favorable reconsideration is respectfully requested.

New independent claim 40 recites a method which encodes an audio signal without buffering an entire long block of audio samples and without transforming the entire long block of audio samples into the frequency domain. None of the cited references nor their combination teach or suggest such a method. Accordingly, claim 40 must be allowed.

New independent claim 41 recites an apparatus including an encoder to encode an audio signal without buffering an entire long block of audio samples and without transforming the entire long block of audio samples into the frequency domain. None of the cited references nor their combination teach or suggest such an encoder. Accordingly, claim 41 must be allowed.

New independent claim 42 is also allowable. Claim 42 recites a method of inserting an inaudible code into an audio signal, wherein an encoded time domain signal is constructed from at least two sequential encoded time domain short blocks, and wherein the phase angles of the encoded short blocks are set by setting the phase angle of the at least one frequency of a first short block to a first predetermined value and incrementing the phase angle of each subsequent short block by a predetermined amount. None of the cited references nor their

combination teach or suggest such a method. Accordingly, claim 42 and all claims depending therefrom must be allowed.

New independent claim 49 is also allowable. Claim 49 recites an apparatus for inserting an inaudible code into an audio signal including an encoder to construct an encoded time domain signal from at least two sequential encoded time domain short blocks, wherein the phase angles of the encoded short blocks are set by setting the phase angle of at least one frequency of a first short block to a first predetermined value and incrementing the phase angle of each subsequent short block by a predetermined amount. None of the cited references nor their combination teach or suggest such an encoder. Accordingly, claim 49 and all claims depending therefrom must be allowed.

New independent claim 56 is also allowable. Claim 56 recites a method of inserting an inaudible code into an audio signal including: (1) generating an encoded long block by individually encoding each of the short blocks by sequentially transforming each of the short blocks into a frequency domain and adjusting an amplitude and a phase angle of a frequency in each of the short blocks, and (2) decoding the encoded long block by transforming the entire encoded long block into the frequency domain. None of the cited references nor their combination teach or suggest such an asymmetrical encoding and decoding method (i.e., wherein only portions of a long block are processed for encoding but the entire long block is processed for decoding). Accordingly, claim 56 must be allowed.

New independent claim 57 is also allowable. Claim 57 recites an apparatus of inserting an inaudible code into an audio signal including: (1) an encoder to generate an encoded long block by individually encoding each of the short blocks by sequentially transforming each of the short blocks into a frequency domain and adjusting an amplitude and a phase angle of a frequency in each of the short blocks, and (2) a decoder to decode the encoded long block by transforming the entire encoded long block into the frequency domain.

None of the cited references nor their combination teach or suggest such an asymmetrical encoding and decoding structure (i.e., wherein portions of a long block are individually processed by the encoder but the long block at a whole is processed by the decoder). Accordingly, claim 57 must be allowed.

New independent claim 58 is also allowable. Claim 58 recites a method which sequentially performs a low resolution frequency transformation on a sequence of overlapping short blocks to estimate a masking energy at a frequency to be encoded, wherein the low resolution frequency transformation is the only transformation from a time domain to a frequency domain used to encode an audio signal, and which extracts a code from the encoded audio signal by performing a high resolution frequency transformation. None of the cited references nor their combination teach or suggest such a method. Accordingly, claim 58 and all claims depending therefrom must be allowed.

New independent claim 61 is also allowable. Claim 61 recites a method which encodes an audio signal by performing a low resolution frequency transformation on a sequence of overlapping short blocks without employing a result of a high resolution frequency transformation. None of the cited references nor their combination teach or suggest such a method. For example, the Jensen reference expressly employs both a high resolution frequency transformation (i.e., the Fast Fourier Transform (FFT) of the long block) and a low resolution frequency transform (i.e., the FFT of the short block) to encode its signals. Accordingly, claim 61 and all claims depending therefrom must be allowed.

Before closing, applicant respectfully traverses the statement on page 3, paragraph 2 of the Office action indicating that numerous references of little or no relevance have been cited by the applicant. On the contrary, the assignee of the instant application has gone to great expense to carefully categorize and diligently search for any prior art it is aware of that might be of interest to a reasonable examiner reviewing the instant application.

Unfortunately, there has been a great deal of work performed in the encoding/decoding arts, and thus, there is much art of potential interest to a reasonable examiner. Therefore, in view of the United States Patent and Trademark Office's stringent disclosure requirements, the assignee has carefully and diligently used its best efforts to meet the duty of disclosure in full. With respect to the Halko reference, U.S. Publication No. 2002/0055398, specified in the Office action as being irrelevant, a typographical error occurred in preparing the information disclosure statement. The intent was to cite Pachet et al., U.S. Publication No. 2001/0055398. Thus, a typographical error occurred which resulted in the erroneous citation of Halko. The Pachet reference and a new PTO-1449 form identifying the same are being submitted herewith to correct this error.

Lastly, with respect to the Examiner's comment on page 2 concerning the nature of the amendments made in the last response, applicant notes that the full statement on page 17 of the amendment was "with the exception of the word 'overlapping' to claims 1, 5, 15, 19, 27 and 32, the amendments made throughout the claims are either broadening or clarifying in that the amended claims are intended to state the same thing as the claim prior to amendment (i.e., to have the same scope both before and after the amendments) in a more easily understood or more conventional fashion" (emphasis added). That statement could not be clearer that the addition of the word "overlapping" to claims 1, 5, 15, 19, 27 and 32 was narrowing but all of the other amendments were broadening or clarifying (i.e., neutral in scope).

It is respectfully submitted that the claims are in condition for allowance. If, for any reason, the examiner is unable to allow the application in the next Official action, the examiner is encouraged to telephone the undersigned attorney at the telephone number listed below to discuss this matter.

The Commissioner is authorized to charge any fee deficiency required by this paper, or credit any overpayment, to Deposit Account No. 50-2455. A copy of this paper is enclosed.

Respectfully submitted,

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